

REMARKS

Claims 1-7, 9-14, 16-18, 20, 25, 27, and 29-35 are pending. Claims 1-7, 9-11, 14, 16-18, 20, and 25 have been amended, claims 8, 15, 19, 21-24, and 26 have been canceled, and new claims 29-35 have been added to recite additional features of the embodiments disclosed in the specification.

Reconsideration of the application is respectfully requested for the following reasons.

In the Office Action, claims 1-5, 10, 14-16, 18, and 23 were rejected under 35 USC § 102(b) for being anticipated by the Desprez patent publication. This rejection is traversed for the following reasons.

Claim 1 recites an extractor to extract energy from an ultracapacitor. The extractor includes “a first amplifier circuit to amplify an output voltage from the ultracapacitor when the detected voltage falls below a first predetermined voltage of a load coupled to the ultracapacitor, the first amplifier circuit to amplify said output voltage independent of a charging operation of the ultracapacitor.” The Desprez publication does not disclose these features.

The Desprez publication discloses a circuit which recharges a supercapacitor when a voltage stored in the supercapacitor falls below a predetermined level. In contrast, the system of claim 1 does not recharge its ultracapacitor. Rather, it amplifies the remaining output voltage of the ultracapacitor when the voltage stored in the ultracapacitor is detected to fall below a first predetermined voltage of a load. To make this distinction clearer, claim 1 has been amended to recite that the first amplifier circuit amplifies said output voltage independent of a charging

operation of the ultracapacitor. Based on these differences, it is respectfully submitted that claim 1 and its dependent claims are allowable over the Desprez publication.

Applicants further submit that amended claim 1 is allowable over the Sasaki patent. Sasaki discloses adding voltage to the output of a chemical cell when the voltage stored in the chemical cells falls below a certain level. As shown in Figure 1, the added voltage derives from a capacitor 30, which is connected to a load with the chemical cell when the low-voltage condition is detected. However, unlike claim 1, Sasaki does not disclose amplifying an output voltage of an ultracapacitor when the detected voltage falls below a first predetermined voltage of a load coupled to the ultracapacitor, the first amplifier circuit to amplify said output voltage independent of a charging operation of the ultracapacitor.

Claim 2 recites that “the first amplifier circuit is to amplify said output voltage of the ultracapacitor to a level substantially equal to or above the first predetermined voltage during a time when the detected voltage of the ultracapacitor is above a second predetermined voltage of the first amplifier circuit.” These features are not disclosed by the cited references.

Claim 5 recites that the system of claim 1 includes a controller which generates “a control signal to modify resistance along a feedback path of the first amplifier circuit to maintain the output voltage of the ultracapacitor substantially equal to or above the first predetermined voltage of the load.” These features are not disclosed by the cited references.

Claim 7 recites an extractor to extract energy from the ultracapacitor. The extractor includes “a second capacitor that is to be coupled in series with the first capacitor during a discharging cycle while the first capacitor remains coupled to the ultracapacitor, the second capacitor being charged to a predetermined level based on a sum of a charge stored in the first capacitor and a charge stored in the ultracapacitor during said discharging cycle.” These features are not disclosed by the cited references. For example, while the Desprez publication discloses recharging a supercapacitor during a low-voltage condition, Desprez does not disclose the second capacitor and its attendant features as recited in claim 7. The Sasaki patent also fails to disclose these features.

Claim 14 recites “amplifying an output voltage from the ultracapacitor when the detected voltage falls below a first predetermined voltage of a load coupled to the ultracapacitor, the first amplifier circuit to amplify said output voltage independent of a charging operation of the ultracapacitor.” These features are not disclosed by the cited references.

Claim 16 recites “amplifying said output voltage of the ultracapacitor to a level substantially equal to or above the first predetermined voltage during a time when the detected voltage of the ultracapacitor is above a second predetermined voltage of an amplifier circuit that is to perform said amplifying.” These features are not disclosed by the cited references.

Claim 25 recites features similar to those which patentably distinguish claim 1 from the cited references. As for the § 103(a) rejection, it is respectfully submitted that the rejected claims

are allowable at least by virtue of the features recited in their base claims that are missing from the Desprez and Sasaki references, which features are also missing from Bhomik patent.

New claims 29-35 have been added to the application.

Claim 29 recites that the first predetermined voltage corresponds to a minimum operating voltage of the load, claim 30 recites that the second predetermined voltage corresponds to a minimum operating voltage of the amplifier circuit, claim 31 recites that the extractor is disabled when a voltage of the voltage source falls below a second predetermined voltage of the extractor, claim 32 recites that the first predetermined voltage corresponds to a minimum operating voltage of the load, and claim 33 recites that the second predetermined voltage corresponds to a minimum operating voltage of the extractor. These features are not taught or suggested by the cited references.

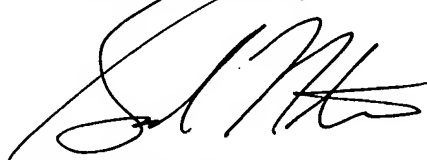
Claim 34 recites that the extractor is disabled when the detected voltage of the ultracapacitor falls below the second predetermined voltage of the first amplifier circuit. These features are not taught or suggested by the cited references.

Claim 35 recites that the ultracapacitor is to be coupled to the load along a first signal path when the detected voltage is above the first predetermined voltage and wherein the ultracapacitor is to be coupled to the load along a second signal path passing through the extractor and disconnected from the first signal path when the detected voltage is below the first predetermined voltage. These features are not taught or suggested by the cited references.

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and timely allowance of the application is respectfully requested.

To the extent necessary, a petition for an extension of time under 37 CFR § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

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